ELECTRICAL ENGINEERING DEPARTMENT
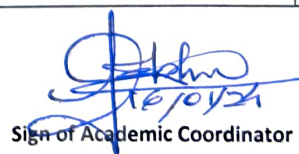## SUBJECT-ENERGY CONVERSION-1   SEM-4th SUMMER-2024
Prepared by-ZAHID AKHTAR

WEEK No	NO OF PERIODS AVAILABLE PER WEEK	CHAPTER	TOPIC NAME	PERIODS ASSIGNED per topic
1	5	1. DC GENERATOR	1.1 Operating principle of generator	1
			1.2. Constructional features of DC machine. 1.2.1. Yoke, Pole & field winding, Armature, Commutator	1
			1.2.2. Armature winding, back pitch, Front pitch,resultant pitch,commutator pitch	1
			cont...	1
			1.2.3. Simple Lap and wave winding, Dummy coils.	1
2	4		cont..	1
			1.3. Different types of D.C. machines (Shunt, Series and Compound)	1
			1.4. Derivation of EMF equation of DC generators. (Solve problems)	1
			1.5. Losses and efficiency of DC generator. Condition for maximum efficiency and numerical problems.	1
3	5		cont...	1
			1.6. Armature reaction in D.C. machine	1
			1.7. Commutation and methods of improving commutation	1
			1.7.1. Role of inter poles and compensating winding in commutation	1
			1.8. Characteristics of D.C. Generators	1
4	5		1.9. Application of different types of D.C. Generators	1
			1.10. Concept of critical resistance and critical speed of DC shunt generator	1
			1.11. Conditions of Build-up of emf of DC generator	1
			1.12. Parallel operation of D.C. Generators	1
			previous year questions answer discussion	1
5	4	2.DC MOTOR	2.1 Basic working principle of DC motor	1
			2.2. Significance of back emf in D.C. Motor.	1
			2.3. Voltage equation of D.C. Motor and condition for maximum power output(simple problems)	1
			cont...	1
				1
6	5		2.4. Derive torque equation (solve problems)	1
			cont...	1
			2.6. Starting method of shunt, series and compound motors.	1
			cont...	1
			cont...	1
7	5		2.7. Speed control of D.C shunt motors by Flux control method. Armature voltage Control method. Solve problems	1
			cont....	1
			2.8. Speed control of D.C. series motors by Field Flux control method, Tapped field method and series-parallel method	1
			cont....	1
			2.9. Determination of efficiency of D.C. Machine by Brake test method(solve numerical problems)	1
8	5		2.10. Determination of efficiency of D.C. Machine by Swinburne's Test method(solve numerical problems	1
			cont...	1
			2.12. Uses of D.C. motors	1
			3.1 Working principle of transformer	1
			3.2 Constructional feature of Transformer.	1

9	4		3.2.1 Arrangement of core & winding in different types of transformer.	1
			3.2.3 Explain types of cooling methods	1
			3.3.3 State the procedures for Care and maintenance	1
			3.4 EMF equation of transformer	1
				1
10	5	3.SINGLE PHASE TRANSFORMER	3.5 Ideal transformer voltage transformation ratio	1
			3.6 Operation of Transformer at no load, on load with phasor diagrams.	1
			cont...	1
			3.7 Equivalent Resistance, Leakage Reactance and Impedance of transformer	1
			3.8 To draw phasor diagram of transformer on load, with winding Resistance and Magnetic leakage with using upf, leading pf and lagging pf load.	1
11	5		3.9 To explain Equivalent circuit and solve numerical problems.	1
			cont...	1
			3.10 Approximate & exact voltage drop calculation of a Transformer.	1
			cont...	1
			3.12 Different types of losses in a Transformer. Explain Open circuit and Short Circuit test.(Solve numerical problems)	1
12	5		3.13 Explain Efficiency, efficiency at different loads and power factors, condition for maximum efficiency (solve problems)	1
			3.14 Explain All Day Efficiency (solve problems	1
			cont...	1
			3.15 Determination of load corresponding to Maximum efficiency. 3.16 Parallel operation of single phase transformer	1
13	5	4.AUTO TRANSFORMER	4.1 Constructional features of Auto transformer 4.2. Working principle of single phase Auto Transformer	1
			4.3. Comparison of Auto transformer with an two winding transformer (saving of Copper). 4.4. Uses of Auto transformer.	1
			4.5. Explain Tap changer with transformer (on load and off load condition)	1
		5.INSTRUMENT TRANSFORMER	Explain Current Transformer and Potential Transformer1.2 Define Ratio error, Phase angle error, Burden.1.3 Uses of C.T. and P.T.	1
			previous year question answer discussion	1
			previous year question answer discussion	1

Sign of Faculty   16/1/24

Sign of Academic Coordinator   16/04/24